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ANALYSIS OF PRINCIPALS' APPLICATION OF TOTAL QUALITY MANAGEMENT STRATEGIES FOR THE IMPROVEMENT OF SECONDARY EDUCATION IN ANAMBRA STATE NIGERIA

Obiekwe, Kingsley K.
Department of Educational Management and Policy, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.

Mbonu, Obianuju Adaobi
Federal College of Education (Technical) Umunze, Anambra State, Nigeria

Emere, Ogechukwu N.
Department of Educational Foundations and Administration, Nwafor Orizu College of Education, Nsugbe, Anambra State, Nigeria.

ABSTRACT
The purpose of this study was to ascertain principals' application of total quality management strategies for the improvement of secondary education in Anambra State. Three research questions were answered and three null hypotheses were tested in the study. The descriptive survey design was adopted with a sample of 267 study participants, made up of 83 male principals and 184 female principals of public senior secondary schools in the state. A structured questionnaire titled "Principals Application of Total Quality Management Strategies Questionnaire" (PATQMSQ) was developed and was used for data collection. The instrument was validated by two experts in educational management and policy; and one expert in educational measurement and evaluation. Internal consistency co-efficients of 0.87, 0.63 and 0.83 were obtained for the three sections of the questionnaire using Cronbach Alpha method. Data were analyzed using mean for research questions, and t-test analysis for hypotheses. The findings revealed that Principals of secondary schools in Anambra State apply two strategies of TQM which are focus on learning process and decentralized management, but do not apply non-threatening assessment strategies. From the results of the hypotheses, no significant difference was established in the responses of male and female principals on all the variables of the study. It was recommended among others that principals should be willing to open up to ideas, information and experiences concerning TQM. This will help predispose them to embrace and commit to application of the strategies of TQM in schools.

Keywords: Principals; Application; Total Quality Management; Strategies; Improvement.

Introduction

All over the world, governments of nations are identifying with the crucial role that secondary school education plays in the development of the economy. Improving the quality of secondary school education is particularly important for all states in Nigeria. This is because education at the secondary school level plays a key role in equipping the youths with the necessary knowledge, skills, competencies and attitudes to serve in various sectors of the economy (Jidamva, 2012). In other words, secondary school education develops in individuals qualities needed for work in different sectors of the Nigerian economy. There is no gainsaying that secondary education is a strategic factor in the creation of effective human capital that is required for economic growth and national development. That is why any nation that aims at producing a competitive economy to meet the global market must consider continuous improvement of its secondary school system a priority.

Indeed, it is imperative that in this era of globalization, school principals in Anambra State work to ensure continuous improvement of the schools. This entails increasing on a continuous basis the quality or standard of the school in its various dimensions, which include instructions, students' achievement, school facilities, school management, teachers or graduates. In order to achieve this, principals of secondary schools in Anambra State need to employ a management system that is proactive, functional and collective in nature. Hence, the application of Total Quality Management (TQM) system by principals can help provide the needed quality which will not only enhance performance but will also enable schools to sustain themselves in today's competitive environment without compromising standard.

Total Quality Management is a management concept that was introduced by W.E. Deming in the 1950s in industries and businesses, but today has been adopted and applied in education. The basic tenet of TQM is its emphasis on quality and continuous improvement. This explains why the concept has been defined in that perspective by different scholars since its emergence. For instance, Padhi (2016) defined TQM as the description of the culture, attitude and organization of a company that wants to provide its customers with quality products and services through continuous improvement. Similarly, Cole in Llantos and Pamatmat (2016) described TQM in education as a management approach that ensures continuous improvement of the educational process and gaining staff commitment to the idea of quality at every stage so as to achieve high quality educational products. Furthermore, Kalpana (2014) isolated the following as TQM strategies for school improvement purposes: focus on learning process, non-

threatening assessment, teacher development, teamwork, decentralized management and community involvement. However, only the strategies of focus on learning process, non-threatening assessment and decentralized management were adopted for the study.

According to Kalpana (2014), the central element of the school functioning is what happens in the classroom, and that is why the interaction between the teacher and the learner remains the most direct determinant of a school's quality. Kalpana argued that this ultimately requires a commitment to the learning process and an obligation by the school principal to ensure that teachers employ the most appropriate pedagogic practices. Invariably, focus on learning process connotes paying adequate attention to students' learning by the principal as the instructional leader of the school. It involves focusing on the learning process, the quality of learning and the way it is delivered.

In the framework of Total Quality Management, non-threatening assessment complements the focus on learning process strategies as tool for achieving continuous improvement in students' learning. A non-threatening assessment is one that does not create fear and humiliation nor encourage negative competition among students. David in Kalpana (2014) categorically noted that Deming did not only teach about the harmful effects of grading and ranking but was also against all forms of assessment that threatened the learner and inhibited learning. This is to say that TQM is particular about school assessment not being threatening. In the philosophy of TQM, a preferred option will be an assessment system that provides feedback to the learner and is non-threatening. A non-threatening assessment with feedback can actually enhance learning rather than inhibit it.
Decentralized management strategies are the last group of strategies in the context of this study. Decentralized management allows the delegation of decision making responsibility and authority among employees at different levels. A typical TQM school organization adopts a decentralized structure because with TQM every member has a role to play as far as quality achievement is concerned. In this regard, Balbo (2012) maintained that an effective TQM institution is usually diametrically opposed to the traditional centralized model because it has quality integrated to its structure and it involves everyone at all levels to make their contributions. In fact, in the educational sector, TQM calls for the decentralization of administrative structure from the highest level to the level of individual schools.

It is pertinent to acknowledge that TQM is generally validated in literature as a quality management approach that has gained popularity for continuous improvement in organizational

performances. In educational circle, application of TQM in schools has recorded success in different places. Ahasanul, Abdullah and Farzana (2013) affirmed that TQM has broad application in educational organizations and has produced desirable results by ensuring continuous improvement in institutions where it has been applied. Obi (2011) further asserted that the application of TQM in education for credibility has recorded support from many studies and that TQM is transforming the educational system. Jaradat (2013) also posited that a package of benefits can be achieved when applying TQM in education and these benefits include: improvement of educational inputs, process and outputs, development of leadership and administrative skills, development of teachers' skills, decreasing the waste resulting from school drop-out and failure rates, achieving stakeholders' satisfaction.

There is no doubt that secondary schools in Anambra State could also enjoy the aforementioned benefits if both male and female principals properly apply the strategies of TQM in their schools. Incidentally, the situation in Anambra State seems to suggest that principals do apply the said strategies for school improvement. Evidence from research reveal that principals in the state are indicted by stakeholders for inefficiency and failure to provide quality management of their schools, which in turn has resulted to poor quality outputs of secondary schools. As a matter of fact, stakeholders attribute the falling standard in secondary school education to inefficiency of principals in managing the school (Akpan, 2011; Ighor, 2014; Ikoro, 2012). Bearing these in mind, this study focused on ascertaining principals' application of TQM strategies for the improvement of secondary education in Anambra State.

Statement of the Problem

Anambra State is economically significant as the hub of business in Nigeria. Unfortunately, observation has shown that the quality of its secondary school graduates appears not too good. It seems that the secondary education sub-sector of the state is unable to equip its clients with the skills for useful living. Consequently, a reasonable percentage of secondary school leavers get themselves involved in various security issues that are prevalent in the state presently. Considering these observations, there is doubt as to whether the management of secondary schools in the State can be adjudged to be efficient for school improvement. This also suggests that Total Quality Management (TQM) strategies which are beneficial for continuous improvement may be lacking in secondary schools in the state. Thus the problem of the study is to find out the strategies of TQM that principals in Anambra State apply for school improvement in the State.

Research Questions

The following research questions were raised for the study:

1. What are the strategies of focus on learning process that principals apply for school improvement in Anambra State?
2. What are the strategies of non-threatening assessment that principals apply for school improvement in Anambra State?
3. What are the strategies of decentralized management that principals apply for school improvement in Anambra State?

Hypotheses

The following null hypotheses were formulated for the study:

1. There is no significant difference in the mean ratings of male and female principals on the application of focus on learning process strategies for school improvement in Anambra State.
2. There is no significant difference in the mean ratings of male and female principals on the application of non-threatening assessment strategies for school improvement in Anambra State.
3. There is no significant difference in the mean ratings of male and female principals on the application of decentralized management strategies for school improvement in Anambra State.

Research Method

The study utilized the descriptive survey design. Three research questions guided the study and three corresponding null hypotheses were tested at 0.05 level of significance. The study sample included all 267 principals of public senior secondary schools in Anambra State. The instrument was a 17-item questionnaire structured on a modified four point Likert rating scale of Strongly Agree, Agree, Disagree and Strongly Disagree. The instrument was validated by three experts. Reliability co-efficients of 0.87, 0.63 and 0.83 were obtained for the three variables of the instrument using Cronbach's Alpha method. Out of 267 copies of instrument administered, 253 copies were retrieved and used for data analysis. This gave a return rate of 94.76% which was considered adequate for the study. Analysis of data was done using mean and t-test as statistical tools.

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Presentation of Findings

Table 1: Mean ratings of principals on application of focus on learning process strategies for school improvement N=253

S/N	ITEMS	Mean	SD	Remark
1.	Allocate subjects to teachers based on their areas of specialization	3.60	.49	Agree
2.	Provide adequate learning resources for students	3.12	.70	Agree
3.	Carry out regular classroom visitation	3.31	.56	Agree
4.	Check teachers' lesson notes, diaries and attendance registers regularly	3.07	.67	Agree
5.	Ensure that teachers create extra time and attention for students with difficulties (eg. organizing lessons on weekends)	2.36	.57	Disagree
6.	Allow students to evaluate their teachers	2.34	.84	Disagree
7.	Ensure that teachers maintain a friendly and non-threatening classroom environment	3.31	.56	Agree

The results in Table 1 show that the principals agree they apply five of the seven listed strategies of focus on learning process for school improvement in Anambra State. The five strategies include: allocate subjects to teachers based on their areas of specialization (mean=3.60); provide adequate learning resources for students (mean=3.12); carry out regular classroom visitation (mean=3.31); check teachers' lesson notes, diaries and attendance registers regularly (mean=3.07) and ensure that teachers maintain a friendly and non-threatening classroom environment (mean=3.31). However, the principals disagree they apply the remaining two strategies which are: ensure that teachers create extra time and attention for students with difficulties (e.g. organizing lessons on weekends) (mean=2.36) and allow students to evaluate their teachers (mean=2.34).

Table 2: Mean ratings of principals on application of non-threatening assessment strategies for school improvement N=253

S/N	ITEMS	Mean	SD	Remark
8.	Students present themselves for assessment when they feel they are ready and not at a time determined by the school	2.13	.48	Disagree
9.	Teachers use alternative assessment techniques instead of tests (e.g. portfolios or observations)	2.42	.74	Disagree
10.	Evaluation system is designed with weekly assessment	2.25	.76	Disagree
11.	Teachers teach some revision classes before any continuous assessment is done	2.69	.71	Agree
12.	Students' results are not ranked according to their performance (e.g. 1st position, 2nd position or last position)	2.43	.85	Disagree

13.	Students are allowed to assess themselves using the self-assessment technique	2.32	.95	Disagree

The analysis displayed in Table 2 shows that principals agree they apply just one (teachers teach some revision classes before any continuous assessment is done; mean= 2.69) of the six strategies of non-threatening assessment for school improvement. They however disagree they apply the remaining five strategies for school improvement. The five non-threatening assessment strategies include: students present themselves for assessment when they feel they are ready and not at a time determined by the school (mean=2.13); teachers use alternative assessment techniques instead of tests (eg. portfolios or observations) (mean =2.42); evaluation system is designed with weekly assessment (mean=2.25); students' results are not ranked according to their performance (e.g. 1st position, 2nd position or last position) (mean=2.43) and students are allowed to assess themselves using the self-assessment technique (mean=2.32).

Table 3: Mean ratings of principals on application of decentralized management strategies for school improvement N=253

S/N	Items	Mean	SD	Remark
1.	Allow staff to take decisions in matters affecting them	2.61	.94	Agree
2.	Allow students to take decisions in matters concerning them	2.79	1.05	Agree
3.	Convene and preside over staff meetings	3.00	.90	Agree
4.	Give staff freedom and control over school resources	2.22	.87	Disagree

As displayed in Table 3, principals agree they apply three of the four strategies of decentralized management for school improvement. The three strategies include: allow staff to take decisions in matters affecting them (mean=2.61); allow students to take decisions in matters concerning them (mean=2.79) and convene and preside over staff meetings (mean=3.00). The principals however disagree they apply the remaining one strategy which is: give staff freedom and control over school resources (mean=2.22).

Table 4: t-test comparison of male and female principals' mean ratings on the application of focus on learning process strategies for school improvement

S/N	ITEMS	Male (N=70) Mean	Female (N=183)	Mean	SD	t-cal	p-value	Remark
1.	Allocate subjects to teachers based on their areas of specialization	3.60	.49	3.58	.50	.21	.83	NS
2.	Provide adequate learning resources for students	3.11	.70	3.17	.69	-.49	.63	NS
3.	Carry out regular classroom visitation	3.31	.56	3.33	.56	-.29	.77	NS
4.	Check teachers' lesson notes, diaries and attendance registers regularly	3.06	.67	3.10	.66	-.38	.70	NS
5.	Ensure that teachers create extra time and attention for students with difficulties (eg. organizing lessons on weekends)	2.38	.58	2.27	.54	1.15	.25	NS
6.	Allow students to evaluate their teachers	2.32	.84	2.40	.82	-.55	.58	NS
7.	Ensure that teachers maintain a friendly and non-threatening classroom environment	3.31	.56	3.31	.55	-.06	.95	NS

The t-test analysis presented in Table 4 shows that there is no significant difference in the mean ratings of male and female principals on their application of focus on learning process strategies for school improvement in Anambra State. This was shown by the calculated p-values in all the 7 items listed which were greater than the than the stipulated 0.05 level of significance. Therefore the null hypothesis of no significant difference between the two groups was not rejected.

Table 5: t-test comparison of male and female principals' mean ratings on the application of non-threatening assessment strategies for school improvement

S/N	ITEMS	Male (N=70)		Female (N=183)		t-cal	p-value	Remark
		Mean	SD	Mean	SD			
1.	Students present themselves for assessment when they feel they are ready and not at a time determined by the school	2.16	.53	2.00	.05	1.94	.06	NS
2.	Teachers use other alternative assessment techniques instead of tests (e.g. Portfolios or observations)	2.43	.70	2.35	.89	.63	.53	NS
3.	Evaluation system is designed with weekly assessment	2.28	.70	2.08	.74	1.76	.07	NS
4.	Teachers teach some revision classes before any continuous assessment is done	2.72	.68	2.54	.82	1.58	.115	NS
5.	Students' results are not ranked according to their performance (e.g. 1st position, 2nd position or last position)	2.43	.85	2.42	.90	.09	.93	NS
6.	Students are allowed to assess themselves using the self-assessment technique	2.32	.91	2.33	1.10	-.07	.94	NS

In Table 5, the calculated p-values in the six items listed were greater than the than the stipulated 0.05 level of significance. This shows that there is no significant difference in the mean ratings of male and female principals on the application of non-threatening assessment strategies for school improvement in Anambra State. The null hypothesis of no significant difference between the two groups was therefore not rejected.

Table 6: t-test comparison of male and female principals' mean ratings on the application of decentralized management strategies for school improvement

S/N	ITEMS	Male (N=70)		Female (N=183)				
		Mean	**SD**	**Mean**	**SD**	**t-cal**	**p-value**	**Remark**
8.	Allow staff to take decisions in matters affecting them	2.60	.94	2.67	.95	-.47	.64	NS
9.	Allow students to take decisions in matters concerning them	2.74	1.04	3.00	1.05	-1.55	.12	NS
10.	Convene and preside over staff meetings	3.03	.88	2.88	.98	1.11	.27	NS
11.	Give staff freedom and control over school resources	2.21	.86	2.23	.90	-.10	.91	NS

Table 6 shows that the calculated p-values in all the four items listed were greater than the than the stipulated 0.05 level of significance. This shows that there is no significant difference in the mean ratings of male and female principals on their application of decentralized management strategies in Anambra State. The null hypothesis of no significant difference between the two groups was therefore not rejected.

Discussion of Findings

The results in Table 1 show that principals agree that they apply five out of the seven strategies of focus on learning process for school improvement. In Table 4, the results show that there is no significant difference in the mean ratings of male and female principals on the application of focus on learning process strategies for school improvement. From these results, it is clear that principals in Anambra State agree that they apply the strategies of focus on learning process in managing their schools. In applying the strategies of focus on learning process, principals ensure that subjects are allocated to teachers based on their areas of specialization. They also ensure that teachers maintain a friendly classroom environment as well as provide adequate learning resources for students. These are made possible because principals carry out regular visitation of the classroom.

The above results agree with one of the findings of Ighor's (2014) study which revealed that regular classroom observation, routine checking of lesson notes, adherence to school curriculum and curricular objectives and proper placements of teachers were identified as quality assurance techniques that were mostly applied by secondary school principals in the monitoring of teaching staff for effectiveness in the teaching and process in Anambra State. The findings also agree with the findings of a study in Anambra State by Onyali and Nnebedum (2016). These researchers found that regular monitoring of teachers' classroom delivery, meeting attendance, school assembly, extra-curricular activities by principals had positive relationship with teachers' productivity level.

Nevertheless, the fact that principals in Anambra State disagree that they apply two important strategies of focus on learning process (i.e. ensure that teachers create extra time and attention for students with difficulties e.g. organizing lessons on weekends; and allow students to evaluate their teachers) is a matter of concern. TQM is particular about the learning process meeting the needs of learners individually. This requires that principals must ensure that teachers create extra time and attention for students with difficulties, which unfortunately is not the case in secondary schools in Anambra State. Incidentally, this situation is in concordance with what Onuma (2015) found out about principals of public secondary schools in Ebonyi State not meeting up with their duty in ensuring that their teachers gave adequate attention to students with special needs. The study discovered that principals lacked supervisory skills and as a result entrusted academic supervision in the hands of external supervisors. In a similar vein, Mobegi, Ondigi and Oburu's (2010) study also showed that the curriculum supervisory methods of secondary school head teachers in Gucha District of Kenya were limited to checking of teachers professional records. The secondary school head teachers gave less emphasis on classroom visitation that would enable them ensure that teachers adapt instruction to individual student's needs.

However, it has to be noted that though similar results were obtained by aforementioned studies, the situation in Anambra State is not attributed to lack of supervisory skills or irregular classroom visitation by principals. Clearly, some other reasons can be adduced for this. It could be that principals and / or teachers do not have interest in taking up an additional responsibility of organizing extra classes for students with difficulties. Indeed, it is common knowledge that teachers in private schools in Anambra State organize home lessons for students in order to make extra money to support their families. For the same reason, their counterparts in public schools may prefer parents to also engage them for extra classes for children with

difficulties in their homes during the weekends.

Again, TQM values the involvement of students in their own education by training them to question the learning process. In this regard, students are allowed to evaluate their teachers. This is also not obtainable in Anambra State. The reason for this could be because the idea of allowing students to evaluate their teachers is not common in Nigerian schools.

Analysis in Table 2 shows that principals agree that they apply just one out of the six strategies of non-threatening assessment for school improvement (i.e. teachers teach some revision classes before any continuous assessment is done). The analysis in Table 5 equally shows that there is no significant difference in the mean ratings of male and female principals on the application of non-threatening assessment strategies for school improvement. It is evident from the findings above that principals in Anambra State generally disagree that they apply non-threatening assessment strategies for school improvement.
However, the only non-threatening assessment method that the principals apply is the continuous assessment technique. The probable reason for this is because the National Policy on Education made provision for only the continuous assessment method to the exclusion of other alternative assessment methods like portfolios, observations and self-assessment techniques. Consequently, the principals seem not to care about the existence of these techniques. This is consistent with Omodara, Bandele and Omirin's (2014) findings about the use of observations as techniques for assessing secondary school students in Ekiti State. The findings revealed that there were significant differences in the use of anecdotal records, rating scales and systematic observations as assessment tools, with rating scales the most frequently used while systematic observations the least. There was also no significant difference in the use of observations as tools for assessing cognitive, affective and psychomotor domains of learning.

Another reason that principals do not apply alternative assessment methods may be because they and their teachers lack the skills that are required for the purpose. Even if principals are aware of the methods, as long as they do not have the necessary skills, they will not be interested in getting the teachers involved in using them. Unfortunately, the teachers in most cases also lack the required skills to apply the said methods. This in line with Koloi-keaikitse's (2017) findings that teachers in South African government schools perceived more skills for test construction and less skills for portfolio and other alternative assessment methods. The teachers were found to be less competent in the use of alternative methods of assessment because they lacked adequate knowledge

and skills to use them. Marcus and Joseph (2014) also discovered in their study that science teachers in secondary schools in Anambra State lacked the skills for continuous assessment in their fields. As a result, they could not construct and administer continuous assessment test in science based subjects. In any case, there is need to reiterate that lack of knowledge and / or skills by principals and teachers could be an indication of inadequate or complete absence of training programmes for non-threatening assessment methods. It is mostly through regular training that such knowledge and skills are gained. This claim is supported by Abdullah, Azian and Mansar (2016) who is in a study on TQM awareness at Revenue Collection Authority in Malaysia, found out that employees' awareness and commitment to TQM principles and methods were influenced by training and education. It was thus recommended that organizations should intensify quality related training for employees at all hierarchy in order to create awareness, interest and action for TQM.

The results as displayed in Table 3 show that principals agree they apply all but one strategy of decentralized management (i.e give staff freedom and control over school resources). Furthermore, the results as displayed in Table 6 show that there is no significant difference in the mean ratings of male and female principals on the application of decentralized management strategies. Together the two results confirm that principals in Anambra State agree that they apply the strategies of decentralized management for school improvement. This means that, the principals allow staff as well as students to take decisions in matters that affect them. They also convene and preside over staff meetings and involve staff in taking decisions during the meetings. By applying decentralized management strategies, principals avoid limiting decision making within the confines of their offices, and they also maximize the professional potentials of staff.

The above findings are corroborated by findings of other researchers. Firstly, in the study by Olurunsola and Olayemi (2011), it was found that secondary school teachers in Ekiti State were significantly involved in decision making processes. Secondly, in another study by Nawelwa, Chanda and Mwanza (2015), it was also discovered that the principles of decentralized management were practiced as teachers were well involved in decision processes in Lusaka District of Zambia. However, the findings of this study do not agree with that of Duze's (2011) study which determined students' and teachers' participation in decision making in secondary schools in Nigeria. The result of this study showed that students and teachers irrespective of sex indicated alike a low level of participation in administrative creative decisions. Presumably, the principals that participated in Duze's study are not

comfortable with the idea of involving school members in decision making. They may be worried that involving school members will interfere with their authority to take decisions about things to be done in the schools. Therefore, these principals could be described as being resistant to the changes and practices of TQM.

At this point, it is important to note that principals disagree that they apply one strategy of decentralized management that is important to TQM philosophy. The fact that principals do not give staff freedom and control over school resources could be regarded as a flaw in their application of decentralized management. Decentralized management is an aspect of TQM that is geared towards empowering the staff and giving them a sense of belonging. Incidentally, the real essence of empowerment requires not only the authority for decision making but also real and effective control over resources. Probably, principals in Anambra State are skeptical about mismanagement of resources on the part of the staff; that is why they do not give them freedom and control over school resources. In this case, the principals may need to be reminded that TQM advocates that a quality driven school leader should be able to let his staff take decisions and also be willing to see them make honest mistakes in order to ensure effectiveness in the application of its strategies.

Conclusion.

Based on the findings, it is concluded that, on one hand, principals in Anambra State apply two TQM strategies of focus on learning process and decentralized management. On the other hand, they do not apply the strategies of non-threatening assessment.

Recommendations

The following recommendations are made based on the findings of the study:

1. Anambra State Post Primary School Service Commission (PPSSC) which is a body in charge of secondary school management in the state should create opportunities for principals and teachers to be trained in non-threatening assessment methods.
2. There is need for PPSSC to step up its efforts with regards to regular monitoring of quality assurance practices in secondary schools. This will help to ensure effectiveness in the application of TQM in schools.
3. Principals of secondary schools in the state should be willing to open up to ideas, information and experiences concerning TQM. This will help predispose them to embrace and commit to

application of the strategies of TQM in schools.

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